

CLAIMS

What is claimed is:

- 5 1. A method for authoring content of a computer-controlled agent, said method comprising the steps of:
 - a) identifying a potential context of said agent for an author;
 - b) receiving a content for said agent in said potential context from said author; and
 - 10 c) storing said content such that said content can be accessed by a run-time system that uses said content to control a behavior of said agent in an actual context, which occurs during an operation of said agent, wherein said actual context matches said potential context.
- 15 2. The method of claim 1, wherein said potential context comprises an input from a user during an operation of said agent.
3. The method of claim 2, wherein said input communicates a message.
- 20 4. The method of claim 3, wherein said message effects a social transaction.
5. The method of claim 3, wherein said message is a question.
- 25 6. The method of claim 3, wherein said message represents a request for help.
7. The method of claim 3, wherein said message is a comment.
- 30 8. The method of claim 3, wherein said message refers to an item selected from the group consisting of biographical information of said agent, biographical information of said user, a chat topic, a behavior of said agent, a received-message received from said agent, a Web site, a display, and an interaction between said user and said agent.

9. The method of claim 3, wherein said message refers to a mood of said agent.

10. The method of claim 9, wherein said mood comprises at least one of an emotion, a manner, an attitude, a style, and a feeling.

11. The method of claim 3, wherein said message communicates a mood of said user.

12. The method of claim 11, wherein said mood comprises at least one of an emotion, a manner, an attitude, a style, and a feeling.

13. The method of claim 3, wherein said message refers to an application.

14. The method of claim 13, wherein said application is selected from the group consisting of: a search engine, an e-commerce system, a registration process, and a simulation.

15. The method of claim 2, wherein said input communicates a gesture by said user

16. The method of claim 2, wherein said input comprises at least one of typed words and spoken words.

17. The method of claim 2, wherein said input comprises a selection from a menu.

18. The method of claim 2, wherein said input comprises a selection of an item on a display.

19. The method of claim 1, wherein said potential context comprises an internal event of said agent.

20. The method of claim 19, wherein said internal event represents a change in an agent-mood of said agent.

21. The method of claim 20, wherein said change is of a specified magnitude.

22. The method of claim 20, wherein said change represents a change along a plurality of underlying mood dimensions.

23. The method of claim 19, wherein said internal event represents a change in an assumed user-mood of a user.

24. The method of claim 19, wherein said internal event refers to a performance of a speech act by said agent.

25. The method of claim 19, wherein said internal event refers to a message from said agent.

26. The method of claim 25, wherein said message refers to an item selected from the group consisting of a social transaction, biographical information of said agent, biographical information of a user, an agent-mood of said agent, an assumed user-mood of said user, a chat topic, a Web site, an application, an interaction between said agent and said user, an input of said user, and a capability of said agent.

27. The method of claim 19, wherein said internal event refers to an action of said agent.

28. The method of claim 27, wherein said action is selected from the group consisting of a display of an animation of said agent, an operation of a browser, an operation of an application, a presentation of a menu, and a presentation of a display.

29. The method of claim 19, wherein said internal event refers to an itinerary of said agent.

30. The method of claim 29, wherein said itinerary comprises a plurality of stops and said event refers to a particular stop from among said stops.

31. The method of claim 30, wherein said particular stop comprises an agenda and said event refers to said agenda.

32. The method of claim 31, wherein said agenda comprises a plurality of steps and said event refers to a particular step from among said steps.

33. The method of claim 32, wherein said particular step comprises a plurality of actions and said event refers to a particular action from among said comprised actions.

34. The method of claim 33, wherein said particular action is of a type selected from the group consisting of speech act, gesture, change mood, write to database, send browser command, run application, and set precondition.

35. The method of claim 1, wherein said potential context comprises an internal state of said agent.

36. The method of claim 35, wherein said internal state represents an agent-mood of said agent.

37. The method of claim 35, wherein said internal state represents an assumed user-mood of a user.

38. The method of claim 35, wherein said internal state represents a volume defined by a plurality of intervals on a corresponding plurality of underlying mood dimensions.

5 39. The method of claim 35, wherein said internal state refers to a message from said agent.

40. The method of claim 35, wherein said internal state refers to an action of said agent.

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41. The method of claim 40, wherein said action is a selected from the group consisting of display of an animation of said agent, an operation of a browser, an operation of an application, a presentation of a menu, and a presentation of a display.

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42. The method of claim 35, wherein said internal state refers to an itinerary of said agent.

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43. The method of claim 1, wherein said potential context includes a plurality of elements.

44. The method of claim 43, wherein said plurality of elements includes a context element pre-defined for said author.

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45. The method of claim 43, wherein said plurality of elements includes a context element defined by said author.

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46. The method of claim 43, wherein said plurality of elements includes a context element predefined for said author and a second context element defined by said author.

47. The method of claim 1, wherein said potential context is identified for said author in a graphical interface.

48. The method of claim 47, wherein said graphical interface provides a labeled slot allowing said author to author said content by filling said slot with text.

49. The method of claim 47, wherein said graphical interface provides a menu of items allowing said author to author said content by selecting one of said items from said menu.

50. The method of claim 47, wherein said graphical interface provides a gesture table of gesture contexts, allowing said author to specify a particular gesture context in which a particular gesture can be performed by identifying a location in said gesture table.

51. The method of claim 50, wherein said gesture table includes a dimension representing a plurality of moods.

52. The method of claim 47, wherein said graphical interface provides an icon representing a function, allowing said author to author said content by selecting said function.

53. The method of claim 52, wherein said function specifies an interaction with an external system.

54. The method of claim 53, wherein said external system is selected from the group consisting of a browser, a database, and an application.

55. The method of claim 1, wherein said content enables said agent to deliver dialogue during an operation of said agent.

56. The method of claim 55, wherein said dialogue is authored explicitly by said author.

57. The method of claim 55, wherein said dialogue includes a variable, which may be replaced by a value selected from a specified group of alternative values.

5 58. The method of claim 55, wherein said content includes a specification of a manner of timing of said dialogue.

59. The method of claim 55, wherein said content includes a specification of a condition under which said dialogue is delivered.

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60. The method of claim 55, wherein said content enables said agent to tell a story.

61. The method of claim 55, wherein said content enables said agent to ask a question of a user.

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62. The method of claim 61, wherein said content enables said agent to deliver different dialogue depending upon said user's response to said question.

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63. The method of claim 55, wherein said content enables said agent to choose among a plurality of alternative dialogue options.

64. The method of claim 1, wherein said content enables said agent to perform a gesture during an operation of said agent.

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65. The method of claim 1, wherein said content enables said agent to change a mood during an operation of said agent.

66. The method of claim 1, wherein said content enables said agent to change a value of a precondition during an operation of said agent.

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67. The method of claim 1, wherein said content enables said agent to interact with an external system during an operation of said agent.

68. The method of claim 1, wherein said content enables said agent to follow an itinerary, comprising a sequence of stops.

5 69. The method of claim 68, wherein said sequence of stops is influenced by an interaction with a user during an operation of said agent, as specified by said author.

10 70. The method of claim 68, wherein said sequence of stops is specified by said author.

15 71. The method of claim 68, wherein said sequence of stops is influenced by at least one of a value of a precondition, a mood, and information retrieved from a database.

20 72. The method of claim 1, wherein said content enables said agent to follow an agenda, comprising a sequence of steps.

25 73. The method of claim 72, wherein said sequence of steps is specified by said author.

30 74. The method of claim 72, wherein said sequence of steps is influenced by an interaction with a user during an operation of said agent, as specified by said author.

35 75. The method of claim 72, wherein said sequence of steps is influenced by at least one of a value of a precondition, a mood, and information retrieved from a database.

40 76. The method of claim 1 wherein said content is persona content.

77. The method of claim 1 wherein said content is application content.

78. The method of claim 1 wherein said agent engages in natural language conversation with a user, and wherein said potential context is potential conversation context, said content is conversation content, said behavior is conversation behavior, and said actual context is actual conversation context.

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79. A method for authoring a computer controlled agent to play a specified role in interaction with a user, said method comprising the steps of:

a) identifying the logical structure of the interaction, comprising a sequence of interaction stages;

10 b) for each of said interaction stages, identifying the logical structure of the interactive behaviors of said agent and said user; and

c) for each of said logical structures of said interaction stages:

identifying a potential context of said agent for an author;

receiving a content for said agent in said potential context from said author; and

15 storing said content such that said content can be accessed by a run-time system that uses said content to control a behavior of said agent in an actual context, which occurs during an operation of said agent, wherein said actual context matches said potential context.

20 80. The method of claim 79, wherein said role is selected from the group consisting of a sales assistant role, a learning guide role, a customer service role, a messenger role, a survey administrator role, a web site host role, a game opponent role, and a marketing agent role.